distribution in Palæozoic strata. Prof. H. Alleyne Nicholson has sent me an imperfect calcified specimen from rocks of Ordovician age at Craighead, Girvan, Ayrshire; and from the Silurian at Wänge, Isle of Gotland, Prof. G. Lindström has forwarded me silicified casts. It also occurs in fragments of limestone of Trenton age (Ordovician) in Northern Illinois, which have been sent to me by Dr. W. R. Head, of Chicago. Some detached tripodal spicules discovered by Mr. J. Wright, F.G.S., of Belfast, in Carboniferous limestones at Sligo, and described and figured by Mr. H. J. Carter *, also appear to me to belong to a sponge of this genus. Its occurrence in Tennessee, New Brunswick, New York, St. Petersburg, and in the Drift of Northern Germany has already been recorded.

MISCELLANEOUS.

Description of a new Genus of Gymnosomatous Pteropoda. By M. Paul Pelseneer.

The author discusses the described genera of Gymnosomatous Pteropoda, of which he rejects *Ægle*, Oken, and *Cirrifer*, Pfeffer, as synonymous with *Pneumoderma*, Cuv.; while *Cliodita*, Q. & G. = *Clione*, Pall., *Eurybia*, Rang = *Halopsyche*, Bronn, *Pneumodermopsis*, Bronn = *Dexiobranchæa*, Boas, and *Trichocyclus*, Eschsch., and *Trigonius*, Busch, are founded upon larval forms. *Pelagia*, Q. & G., and *Cymodocea*, d'Orb., are provisionally rejected as insufficiently characterized. Six genera are accepted by the author, as tabulated below:—

1. Visceral envelope presenting a specialized branchial apparatus ..... 2.
   Visceral envelope presenting no special branchial apparatus ..... 5.
2. Acetabuliferous buccal appendages ..... 3.
   No acetabuliferous buccal appendages .... 4. *Clionopsis*, Trosch.
3. No posterior branchia ..... 1. *Dexiobranchæa*, Boas.
   A posterior branchia ..... 4.
4. Posterior branchia presenting four symmetrical rays ..... 2. *Pneumoderma* †, Cuv.
   Posterior branchia consisting of a membranous ring ..... 3. *Spongiobranchæa*, d'Orb.
5. Body elongated, pointed behind ..... 5. *Clione*, Pall.
   Body ovoid, rounded behind ..... 6. *Halopsyche*, Bronn.

These genera are ranged under four families, namely:—1. Pneumodermatidæ (genera 1–3); 2. Clionidæ (genus *Clione*); 3. Halopsychidæ (genus *Halopsyche*); and 4. Clionopsidæ (for *Clionopsis*).

* 'Annals,' ser. 5, vol. vi. p. 212, pl. xiv. figs. 10, 11.

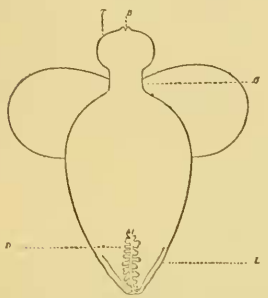
† Throughout his paper the author has altered Cuvier's name to *Pneumonoderma*, a change which is manifestly incorrect. Cuvier's name conveys the idea that the animal breathes by its skin; the alteration would give it "skin-lungs" or a "lung-skin"!

The new genus described by the author, which is founded upon a specimen in the National Museum at Washington, enters into none of these families. He names it

NOTOBRANCHÆA.

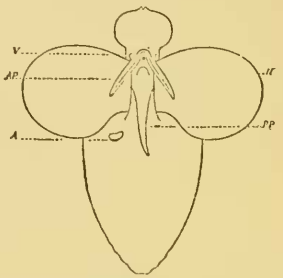
Char. Body contracted behind, presenting only a posterior branchia, formed by three crests (one dorsal and two lateral), of which the dorsal one alone is fringed. Anterior and posterior lobes

Fig. 1.—Dorsal view, ×4½.



B, mouth; C, neck; D, dorsal branchial crest; L, lateral branchial crest; T, head.

Fig. 2.—Ventral view, ×4½.



A, anus; N, fin; AP, anterior, PP, posterior lobes of the foot; V, orifice of the penis.

of the foot long and narrow, the former free in their posterior two thirds. These are also the characters of the family Notobranchæidæ.

The only species known to the author, which is represented by a single specimen in the United States National Museum at Washington, is named by him *Notobranchæa MacDonaldii*, in honour of Dr. MacDonald, who has recorded a similar arrangement of the branchia in a small Gymnosome collected by him off Sydney. The described specimen was obtained off Carolina in N. lat. 38° 10′, and W. long. 74° 15′, by the steamer 'Albatross.' It measures 8 millim. in length.

In conclusion the author discusses the phylogenetic relations of the Gymnosomata, which he regards as having originated from the Aplysians, to which *Dexiobranchæa* (= *Pneumodermopsis*, Bronn *) comes nearest, being less specialized and possessing only the lateral branchia. *Spongiobranchæa* possesses a very simple posterior branchia, a specialization of the posterior ciliated ring which persists so long in *Dexiobranchæa*; while *Pneumoderma* shows a great complication of this posterior branchia by the presence of four crests radiating from the original ring. *Clionopsis* shows retrogression, the lateral branchia having quite disappeared and the posterior one become much simplified; and in *Clione* and *Halopsyche* there are no traces of a special branchial apparatus. *Notobranchæa* seems to represent the forms from which *Clione* originated.—*Bull. Sci. Dép. du Nord*, sér. 2, ann. ix. no. 6.

* It is not very clear why this generic name is abolished in favour of *Dexiobranchæa*.